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ABSTRACT

A search of experimental and theoretical literature and an analysis of professional textbooks, instructional materials, and published tests were carried out in order to (1) determine current concepts of reading comprehension deriving from experimental investigations, verbal statements, and models and (2) establish the extent to which these concepts were represented consistently in current secondary reading professional textbooks, instructional materials, and published tests. The study revealed a basic dichotomy between concepts of comprehension described in terms of overt behavior (particular skills) and those described in terms of covert behavior (cognitive operations): much of the difficulty in understanding the nature of comprehension appears to derive from a failure among experimenters and theorists to associate overt behavior with underlying covert processes. It was concluded that until the covert psychological process which produces comprehension is explained, verbal descriptions of comprehension skills (and, by implication, instructional objectives) are almost certainly going to be imprecise. (Various experimental definitions of comprehension are delineated and a bibliography is appended.) (MF)

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CONCEPTS OF READING COMPREHENSION AND THEIR REPRESENTATION IN CURRENT SECONDARY READING PROFESSIONAL TEXTBOOKS, INSTRUCTIONAL MATERIALS, AND TESTS

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The purpose of this study was twofold: (1) to determine current concepts of reading comprehension deriving from experimental investigations, verbal statements, and models, and (2) to establish the extent to which these concepts were represented consistently in current secondary reading professional textbooks, instructional materials, and published tests.

Two major assumptions formed the basis of this investigation. The first was that the ultimate objective of the reading act is to understand what is read. This understanding is usually referred to as comprehension. However, though the importance of comprehension is widely recognized by reading authorities, comprehension is one of the least understood aspects of the reading process. For this reason there was a need for a study such as the present one which would draw together and analyze the findings of the growing number of experimental and theoretical investigations of comprehension. Such a study would provide an inclusive description of the present knowledge relating to comprehension and of the prevailing concepts by which comprehension is explained. Such a study would also indicate the direction further investigations of comprehension might take while providing a comprehensive framework within which these investigations could be carried out.

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The second major assumption underlying this study was that the ultimate purpose of educational research is the improvement of educational practice. The rapid development of reading instruction in the secondary grades over the past decade has resulted in a growing number of professional textbooks intended for secondary reading teachers, secondary reading instructional materials, and published reading tests for the secondary grades. The second phase of the present study was to determine the extent to which current concepts of reading comprehension deriving from experimental investigations, verbal statements, and models were represented in secondary reading professional textbooks, instructional materials, and published tests, and to determine the degree of consistency in these representations.

Specifically, the major questions which this study sought to answer were the following:

1. What are the current concepts of reading comprehension which derive from experimental investigations, verbal statements, and models?

2. Which current concepts of reading comprehension are represented in professional textbooks intended for secondary teachers?

3. Which current concepts of reading comprehension are represented in instructional materials intended for teaching reading in the secondary grades?

4. Which current concepts of reading comprehension are represented in published reading tests designed for the secondary grades?

5. To what extent does agreement exist among the concepts of comprehension represented in secondary reading professional textbooks, instructional materials, and published tests?

The definitions of terms used in this study were the following:

1. Experimental definition of comprehension is any definition stated by an author that is derived directly from the testing of a hypothesis by the collection and analysis of data. For example, an experimental definition would be provided by a factor analysis study undertaken to test the hypothesis that reading comprehension can be accounted for by a single factor. If this hypothesis was confirmed, an experimental definition of reading comprehension would be provided by the interpretation given to the single factor isolated.

2. Verbal definition of comprehension is any definition stated by an author that is not directly supported by experimental evidence. For example, a verbal definition would be given by the statement that reading comprehension results from the mental processing of language, provided that this statement was not directly supported by the findings of an experimental investigation. If the statement was directly supported by the findings of an experimental investigation, it would be an experimental definition.

3. Professional textbook is a unified and comprehensive treatment of the major issues in reading instruction written for classroom teachers.

4. Instructional materials are materials designed and developed to facilitate the teaching of reading in the secondary grades.

5. Published reading tests are reading tests designed and published to measure the general or specific reading performance of students in a group situation.

6. Secondary grades are considered to include grades eight through twelve.

METHOD

The initial stage of this study involved an intensive search of both the experimental and theoretical literature pertaining to reading comprehension. The relevant experimental literature was identified through the ERIC/CPIER system. Pertinent theoretical literature was determined by a thorough search of published bibliographies containing references to articles relating to comprehension.

Professional textbooks, instructional materials, and published tests intended for secondary reading were also identified. All current professional textbooks dealing in depth with comprehension and written for prospective and practicing secondary teachers were selected from a recent compilation of resources available to these teachers (Summers, Harker, and Trull, 1970). The instructional materials analyzed were those designed for the secondary grades contained in the extensive collection of instructional reading materials located in the University of British Columbia Reading Resources Centre. This collection has been developed over a number of years by faculty members in the Department of Reading Education to give prospective and practicing teachers a broad cross-section of available elementary and secondary instructional materials in reading. It therefore provided a representative source of currently available and used secondary reading instructional materials. Finally, published reading tests containing measures of comprehension applicable to the secondary grades were determined from an examination of a recent comprehensive listing of published reading tests (Farr, 1969).

FINDINGS

Current Concepts of Comprehension

Experimental definitions of comprehension. Experimental investigations of comprehension may be classified according to three main types: statistical analyses, studies of the specificity of comprehension, and instrospective-retrospective verbalization case studies. Statistical analyses of comprehension have involved subjects drawn from the elementary grades through college and have utilized a broad range of tests. The analytic procedure most often employed has been factor analysis (Alsham, 1964; Anderson, 1949; Conant, 1942; Davis, 1944; Derrick, 1953; Feder, 1938; Hall and Robinson, 1945; Harris, 1948; Langsam, 1941; Mazurkiewicz, 1957; Richardson, 1950; Sutherland, 1966; Vernon, 1962), although item analysis (Hunt, 1957), simple correlation analysis (McCullough, 1957), and multiple-regression procedures (Davis, 1968) have also been used. Some studies have isolated only one factor while others have isolated a number, two of which are usually interpreted as word knowledge and reasoning. Studies of the specificity of comprehension have involved subjects and measuring instruments similar to those used in what have been termed statistical analyses (Artley, 1944; Cooper, 1955; Grim, 1940; Maney, 1958; McCallister, 1930; McMahon, 1943; Robinson and Hall, 1941; Shores, 1943; Shores and Saupe, 1953; Sochor, 1958; Swenson, 1942). Generally, while a definite degree of specificity with respect to the comprehension of reading materials in different content areas was apparent from these studies, some commonality was also shown. Introspective-retrospective verbalization case studies have suggested a number of mental operations accompanying comprehension (Jenkinson, 1957; Piekarz, 1956; Smith, 1967; Stemmler, 1969; Strang and Rogers, 1965; Swain, 1953; Ward, 1968).

The various experimental definitions of reading comprehension may be summarized as follows:

1.00 Comprehension as defined by statistical analyses

1.10 Comprehension is a unitary mental ability having no distinguishable subskills

1.20 Comprehension is a composite of a number of subskills, the two most common being interpreted as word knowledge and reasoning

2.00 Comprehension as defined by studies of its specificity

2.10 Comprehension is to a greater or lesser extent specific to the content material being read

3.00 Comprehension as defined by introspective-retrospective verbalization case studies

3.10 Comprehension is a cognitive activity involving the following mental processes

3.11 Ideational Fluency: a large number of responses leading to the determination of meaning on an abstract rather than a literal level

3.12 Linguistic Fluency: a general sensitivity to language and to the use of language clues in the determination of meaning

3.13 Manipulation: involving analysis, synthesis, anticipation, retrospection, etc. leading to a holistic rather than fragmented or distorted determination of meaning

3.14 Variety and Flexibility: the use of a variety of strategies to determine meaning and flexibility in altering strategies to meet new needs

3.15 Objectivity: extraneous personal, subjective, or emotional responses not allowed to interfere with the determination of meaning

Verbal definitions of comprehension. Verbal definitions of reading comprehension were of two general types, skills-based definitions and cognitive-based definitions. Skills-based definitions presented concepts of comprehension in terms of the specific skills which are deemed necessary in order for a reader to comprehend. In most cases, these skills were presented within hierarchical organizations (Andresen and Robinson, 1966; Cutter, 1967; Dale, 1965; Huus, 1967; Joll, 1967; Letton, 1958; Piekarz, 1964; Smith, 1960, Smith, 1969). However, some authorities have questioned the legitimacy of these hierarchical organizations, maintaining that it is the nature of the material read coupled with the reader's purpose that determine the skills used (Bliesmer, 1969; Heilman, 1969; Howards, 1965; McCullough, 1969; Sochor, 1959). Authorities also used skills-based definitions to describe critical and creative reading when these two kinds of "higher" comprehension ability was discussed (Cooper, 1964; Huus, 1965; Kay, 1946; Massey, 1963; McCullough, 1954; Robinson, 1964; Williams, 1959). Skills-based definitions of comprehension were characterized by lack of clarity. When individual skills were described, imprecision often resulted, making the comparison of skills among different definitions extremely difficult. When, in addition to comprehension, critical and creative reading were explained in terms of the skills supposedly involved, definitions became increasingly imprecise. A further difficulty with skills-based definitions arose from the conceptual boundaries within which these definitions were formulated. Little agreement existed among authorities as to whether or not certain skills can

be legitimately subsumed under the heading "comprehension."

While skills-based definitions described comprehension through the skills necessary to understand what is read, cognitive-based definitions provided explanations of comprehension in terms of the mental operations believed to produce this understanding (Carroll, 1964; Kingston, 1968; Kress, 1966; Wark, 1968; Weaver, 1964). Cognitive-based definitions varied in the manner by which they explained the cognitive operations producing comprehension. This variety in part resulted from the fundamental problem encountered in cognitive-based definitions--the lack of a generally accepted explanation of cognition. Until an answer is provided to this basic question, the more particular question of the kinds of cognitive activity involved in reading comprehension must remain extremely tentative.

The various verbal definitions of comprehension may be summarized as follows:

1.00 Skills-based definitions of comprehension

1.10 Comprehension involves a number of separate skills which are arranged hierarchically

1.20 Comprehension involves a number of separate skills which are not arranged hierarchically

1.30 Critical and creative reading constitute high-level comprehension and involve separate skills which are distinguishable from those associated with low-level comprehension

2.00 Cognitive-based definitions of comprehension

2.10 Comprehension is a cognitive process involving a variety of mental operations which may be described in various ways

Definitions of comprehension provided by models. Recently a number of models of comprehension have been proposed. These models have resulted at least in part

from the recognized need for greater precision and coordination in data collection and theoretical speculation directed toward understanding comprehension. However, when comprehension models were examined, confusion was apparent since attempts to explain comprehension were made from different points of view: the skills deemed necessary for comprehension (Gray, 1960; Robinson, 1966; Spache, 1963), the instructional objectives considered necessary to teach comprehension (Barrett, 1970), the external influences which may affect comprehension (Kingston, 1961), the cognitive operations which are conceived to produce comprehension (Cleland, 1966; Holmes, 1962; McCullough, 1968; Rystrom, 1970; Smith, 1960; Stauffer, 1969), and the psycholinguistic activity that seems to be involved in comprehension (Goodman, 1970; Ruddell, 1969; Venezky and and Calfee, 1970). An additional source of confusion derived from the lack of generally accepted conceptual boundaries within which comprehension should be considered. Although models have not produced the definitive explanation of reading comprehension, they have illustrated with greater precision the intricacies and problems involved in determining such an explanation.

Definitions of reading comprehension provided by models may be summarized as follows, though the several models differed considerably in detail:

1.00 Comprehension involves a number of separate overt skills which reflect a coherent psychological whole

2.00 Comprehension is describable in terms of a hierarchical organization of educational outcomes

3.00 Comprehension is influenced by a number of external factors which affect its attainment

4.00 Comprehension is a cognitive process comprised of a series of mental operations which may be described in various ways

5.00 Comprehension is a highly complex cognitive process involving the psychological processing of language

Concepts of Comprehension Represented in Secondary Professional Textbooks, Instructional Materials, and Tests

Concepts of comprehension represented in secondary professional textbooks. Each textbook reviewed provided a verbal definition of comprehension which, with only one exception, was expressed in terms of a hierarchical organization of skills. Thus, the concepts of comprehension represented in these textbooks may be generally accounted for as verbally defined skills-based hierarchies.

Concepts of comprehension represented in secondary instructional materials. The instructional materials examined were placed into five categories (Basal Materials, Skills-Building Materials, Materials for Special Groups, Workbooks, and Boxed Materials) and the concepts of comprehension represented in the materials were determined within each of these categories. The prevailing concept of comprehension was represented verbally in skills-based non-hierarchical definitions. These definitions were found to predominate in four of the five categories of materials. In the fifth category, Materials for Special Groups, either extremely vague or no definitions of comprehension were found. The second most prevalent concept of comprehension revealed in these materials was stated by verbal skills-based hierarchical definitions.

Concepts of comprehension represented in secondary tests. Some published reading tests were grossly deficient in their failure to state the concepts of comprehension upon which they were presumably based. Other tests provided only vague and insufficient descriptions of the concepts of comprehension which they

ostensibly measured. Where explicit definitions were given, they were expressed verbally and were based on the skills involved in comprehension. These skills were without exception conceived as operating in a non-hierarchical manner. Whether the tests reviewed actually did reflect the concept of comprehension (if any) on which they were based was not pursued.

Assessment of concepts of comprehension represented in secondary professional textbooks, instructional materials, and tests. Concepts of comprehension were represented in secondary reading professional textbooks, instructional materials, and published tests by verbal skills-based definitions. Textbooks generally arrangedcomprehension skills hierarchically, while materials and tests organizedcomprehension skills non-hierarchically. The difficulties generally associated with verbal definitions of comprehension were apparent in the great majority of the verbal definitions in textbooks, materials, and tests. The imprecision which characterized these verbal definitions led to confusion when individual skills were examined both within and across different textbooks, materials, and tests. There also appeared to be little agreement concerning the conceptual boundaries within which comprehension should be considered and the individual skills to be included within comprehension.

CONCLUSIONS

A basic dichotomy is revealed by this study between concepts of comprehension described in terms of overt behavior and those described in terms ofcovert behavior. Overt behavior associated with comprehension is usually described in terms of the particular skills which a reader must presumably exercise in order to comprehend. Covert behavior is described in terms of the

cognitive operations supposedly involved in comprehension. Much of the difficulty in understanding the nature of comprehension appears to derive from a failure among experimenters and theorists to associate overt behavior with underlying covert processes. It would seem fruitful to consider comprehension as a psychological process in terms of postulated covert behavior. The overt behavior associated with comprehension may then be considered as an outer manifestation of this postulated covert behavior. It may be argued that it is the psychology of comprehension which determines the outer display of understanding exhibited by readers when they perform comprehension skills. Until the covert psychological process which produces comprehension is explained, verbal descriptions of comprehension skills are almost certainly going to be imprecise since their psychological basis is not understood. Moreover, the conceptual boundaries within which comprehension is explained verbally are bound to remain unclear while the psychological process which determines these boundaries remains unexplained.

The imprecision characteristic of the verbal skills-based definitions of comprehension represented in secondary reading professional textbooks, materials, and tests appears to derive from a lack of a clear understanding of the psychological processes which constitute comprehension. In no instance did textbook authors, materials builders, or test constructors provide a well-formulated psychological rationale for the verbal definitions of comprehension which they proposed. These definitions were almost always given solely in terms of the specific overt behaviors which readers are to display as evidence of their understanding. In the few instances when cognitive-based definitions were provided, they were given in an extremely vague fashion, and the relationship between these definitions and the overt behaviors expected of students was not made clear.

The lack of precision in descriptions of the concepts of comprehension underlying secondary reading professional textbooks, instructional materials, and tests makes the development of effective reading programs in the secondary grades extremely difficult. If the definitions of comprehension which underly the instructional objectives set for teachers in professional textbooks, the materials available for teachers to carry out these objectives, and the tests used to measure the achievement of these objectives are not accurately understood, clearly articulated instructional programs are not possible. Unfortunately, it would seen that this condition existed at the time of this study.

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